

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 39-64 are pending in the application, with 39, 49, 58, and 60 being the independent claims. Claims 1-38 are sought to be withdrawn without prejudice to or disclaimer of the subject matter therein. New claims 58-64 are sought to be added. Claims 40, 45, 49, and 51 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Elections/Restrictions

Applicant acknowledges without disclaimer that the restriction requirement has been made final. Applicant has withdrawn claims 1-38 without prejudice to or disclaimer of the subject matter recited therein.

Rejection Under 35 U.S.C. § 112

Claim 51 was rejected under 35 U.S.C. § 112, second paragraph, for insufficient antecedent basis for the claim limitation "said pistons". (*See*, Office Action ¶ 6.)

Applicant has amended claim 51 so that it depends on claim 50. This amendment establishes antecedent basis for the claim limitation "said pistons". Therefore, Applicant respectfully requests that this rejection be removed from claim 51.

Likewise, to preclude another antecedent basis issue, Applicant has amended claim 45 so that it depends on new claim 61.

Rejections Under 35 U.S.C. § 102

Claims 39, 42-44, 46, and 47 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,182,455 to Muraki, hereinafter "Muraki". (See, Office Action ¶ 8.) Applicant respectfully traverses these rejections.

Independent claim 39 (emphasis added) recites:

A method of using a holographic reticle to characterize an optical system, the method comprising the steps of:

- (1) placing the holographic reticle in a path of an optical beam within the optical system;
- (2) ***recording*** an image produced by the path of the optical beam passing through the holographic reticle; and
- (3) analyzing the image to ***characterize the optical system***.

The Office Action contends that the method of Muraki teaches "recording (8, 10) an image produced by the path of the optical beam passing through the holographic reticle" and "analyzing the image to characterize the optical system." (Office Action ¶ 8.) Applicant disputes these contentions.

Elements 8 and 10 in Figure 1 of Muraki are ***photoelectronic converting elements***. They do ***not record*** an image, but rather function to ***receive*** reflective diffraction beams from a grating mark G_w on a wafer via projection lens system 1, reflecting mirror 11, and analyzer 7, and to ***convert*** these beams into an electric signal. (See, Muraki at col. 6, lines 45-51; col. 7, lines 42-68 through col. 8, lines 1-2; col. 11, lines 21-45; and col. 12, lines 36-43.)

Furthermore, as the Office Action concedes, "Muraki shows a method of detecting relative positional deviation between two objects." (Office Action ¶ 8.) The Muraki method does *not characterize the optical system*, but rather functions within the parameters of the optical system to *maintain alignment between the reticle and the wafer*. Although Muraki recognizes that characteristics (e.g., chromatic aberration) of the optical system can effect the ability to detect positional deviations between the reticle and the wafer (*see*, Muraki at col. 2, lines 5-13 and lines 21-31; col. 9, lines 16-26; and col. 13, lines 20-22 and 33-53), nothing in Muraki discloses, teaches, or suggests that its method could be used to characterize the optical system itself.

Thus, Muraki does not recite each and every feature of independent claim 39, and therefore does not anticipate claim 39. Accordingly, Applicant respectfully requests that the rejections under 35 U.S.C. § 102(b) be reconsidered and withdrawn for claim 39 and associated dependent claims 42-44, 46, and 47, and that all these claims be passed to allowance.

Rejections Under 35 U.S.C. § 103

Claims 40, 45, 48, 54, and 55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Muraki in view of U.S. Patent No. 5,898,479 to Hubbard *et al.*, hereinafter "Hubbard". (*See*, Office Action ¶ 10.) Applicant respectfully traverses these rejections.

Regarding claims 40 and 45, Applicant has amended these claims to depend directly or indirectly from new independent claim 60. New independent claim 60 (emphasis added) recites:

A method of using a holographic reticle to characterize an optical system, the method comprising the steps of:

- (1) placing the holographic reticle in a path of an optical beam within the optical system;
- (2) recording an image produced by the path of the optical beam passing through the holographic reticle; and
- (3) analyzing the image to characterize the optical system for ***at least one of field curvature, astigmatism, coma, distortion, telecentricity, spherical aberrations, and variation of coherence.***

Neither Muraki nor Hubbard alone or in combination discloses, teaches, or suggests a method for characterizing an optical system for at least one of field curvature, astigmatism, coma, distortion, telecentricity, spherical aberrations, and variation of coherence. Therefore, claims 40 and 45 are patentable over Muraki in view of Hubbard for at least this reason, and further in view of their additional distinctive features.

Regarding claims 48, 54, and 55, the Office Action, without applying either Muraki or Hubbard, merely asserts that "the determination of different order aberrations is well known in the art and it would have been obvious to one of ordinary skill in the art to determine those orders of aberration to better characterize the optical system." (Office Action ¶ 10.) Applicant disputes this assertion. Neither Muraki nor Hubbard alone or in combination discloses, teaches, or suggests analyzing an image, ***produced by the path of an optical beam passing through a holographic reticle***, to determine aberrations in an optical system. Accordingly, as provided for at M.P.E.P. § 2144.03(C), Applicant respectfully requests that the Examiner either provide documentary evidence to support his assertion or remove the present rejections and pass claims 48, 54, and 55 to allowance.

Allowable Subject Matter

Claims 49-53 were "objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." (Office Action ¶¶ 11 and 12.)

Accordingly, Applicant has amended claim 49 to include all of the features of claim 39. Claims 50-53 remain dependent from claim 49. Therefore, Applicant respectfully requests that claims 50-53 be passed to allowance.

Claims 41, 56, and 57

The Office Action is silent with regards to the status of claims 41, 56, and 57. Because these claims depend directly or indirectly from independent claim 39, they are allowable for at least the same reasons as it, and further in view of their additional distinctive features. Therefore, Applicant respectfully requests that claims 41, 56, and 57 be passed to allowance.

Outstanding IDS Submission

An Information Disclosure Statement (IDS) was timely submitted on June 20, 2003, but has not yet been considered. A new copy of the Form PTO-1449 with these documents is included for convenience. Applicant respectfully requests that the Examiner consider the disclosed documents and indicate his consideration on the Form PTO-1449.

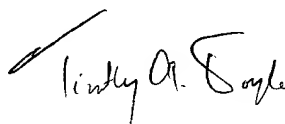
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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